

Listing of Claims

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. A process for fabricating a whole solid-state pH sensing device by using polypyrrole as ~~the~~ a contrast pH detector, said process comprising the following steps:

step 1: preparing various solid-state substrates and selecting an appropriate substrate based on a solid-state sensing material and a sensing environment;

step 2: depositing the solid-state sensing material on said substrate;

step 3: positioning the device;

step 4: using an epoxy resin to seal the material and fixing a sensing window area;

and

step 5: ~~then~~ immersing the device into ~~a~~ an electro ~~electro~~-polymerizing solution ; and electro-polymerizing ~~by using~~ the polypyrrole, ~~thus~~ for completing the fabrication of the whole solid-state pH sensing device, wherein

the step of electro-polymerizing the polypyrrole ~~further~~ comprises the following steps:

step A: preparing a finished conductive substrate;

step B: cleaning the substrate;

step C: preparing said electro-polymerizing solution, which comprises a buffer solution, electrolytes, and the monomer of polypyrrole;

step D: connecting the substrate to a positive electrode of a power supply, and connecting a platinum electrode to a negative electrode of the power supply, and

immersing the substrate into said electro-polymerizing solution, where the power supply provides a constant potential which is higher than the oxidizing potential of said polypyrrole, in a manner that said polypyrrole polymerized on said substrate;

step E: immersing a polypyrrole sensor into de-ionized water for ten (10) minutes to clean said polypyrrole sensor;

step F: removing and drying said sensing device, thus completing fabrication of the polypyrrole sensor;

said solid-state substrate is selected from the group consisting of a silicon substrate, a glass substrate, a ceramic substrate and a plastic substrate;

said sensing material is selected from the group consisting of a tin dioxide membrane and other solid-state conductive ion-sensing membrane; and

said polymerizing solution comprises a buffer solution, salts, and polypyrrole, the polymerizing solution comprising a phosphate solution, potassium chloride, and polypyrrole; wherein, through changing the composition of said polymerizing solution, the control of the sensitivity of said polypyrrole sensor is achieved, and wherein the process is applied to fabricate a sensing electrode with an appropriate sensitivity and the control of the sensitivity of a differential pair pH sensing device is obtained.

2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Cancelled)

7. (Cancelled)

8. (Cancelled)